

REMARKS

Claims 20-23, 26 and 27 are presented for examination. Claims 20, 23 and 26 are in independent form and have been amended to define still more clearly what Applicant regards as his invention. Claims 24 and 25 have been canceled without prejudice or disclaimer of subject matter.

Claim 26 was objected to because “said correction unit” was used and was purported to have not been previously introduced. However, Claim 20, from which Claim 26 is dependent, introduces “a correction unit” as its last element. For this reason, withdrawal of the objection due to a language inconsistency is respectfully requested.

Claims 20-23 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,563,536 (*Rashkovskiy et al.*).

Independent Claim 20, as amended, discloses an image processing apparatus comprised of a read-out unit, an operating unit, and a correction unit. The read-out unit reads a photoelectric conversion signal accumulated in a pixel during a first accumulation duration and includes a first noise component. The operating unit calculates a noise correction value corresponding to the first noise component by using a correction value corresponding to a second noise component (e.g. FPN) accumulated in the pixel during a second accumulation duration, and by using a correction value corresponding to a third noise component (e.g., dark current noise) accumulated in the pixel during a third accumulation duration. The noise correction value is calculated on the basis of changes in the first, second and third accumulation durations, and changes in the first, second and third noise components accumulated in the pixel. The first, second and third accumulation durations are different from each other. The correction unit is used to correct a

photoelectric conversion signal using the calculated correction value corresponding to the first noise component.

Independent Claim 23, as amended, discloses an image processing apparatus with features similar to those of Claim 20 with the exception that the noise correction value is calculated on the basis of changes in the first and second accumulation durations, and changes in the first and second noise components accumulated in the pixel.

Rashkovskiy et al. discloses generating a dark image noise frame and using that noise frame to help compensate for noise found in video frames (see, e.g., abstract and col. 1, line 54 - col. 2, line 2). Specifically, *Rashkovskiy et al.* discloses including a dark current noise frame at a predetermined interval during read-out of the video data stream (see, e.g., frame 24 in Fig.3; col. 2, line 66 - col. 3 line 11; and col. 3 lines 16-17) and calculating a correction value by subtracting the noise intensity of a representative noise frame, or a rolling average from a set of frames, from the intensity of a corresponding video frame (col. 2, lines 43-48) or set of frames (col. 3, lines 12- 22 and lines 26-29). For example, in one embodiment, the rolling average of an average value of two consecutive dark current image frames 24 is used (col. 3, line 55 - col. 4, line 3).

Rashkovskiy et al. fails to teach or suggest calculating a correction value corresponding to a first noise component on the basis of changes in the first, second and third accumulation durations, and changes in the first, second and third noise components accumulated in the pixel, and where the first, second and third accumulation durations are different from each other.

Likewise, *Rashkovskiy et al.* fails to teach or suggest calculating a correction value corresponding to a first noise component on the basis of changes in the first and second accumulation durations, and changes in the first and second noise components

accumulated in the pixel, and where the first and second accumulation durations are different from each other.

Accordingly, the rejection under 35 U.S.C. § 102(e) is believed to be overcome, and each of Claims 20 and 23 is believed to be clearly patentable over the *Rashkovskiy et al.* reference.

Claims 24-26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Rashkovskiy et al.*. The cancellation of Claims 24 and 25 make the rejection as to those claims moot. Claim 26 is dependent upon Independent Claim 20 and, therefore, is patentable for at least the same reasons as described above for Claim 20.

Accordingly, the rejection under 35 U.S.C. § 103(a) is believed to be overcome, and Claim 26 is believed to be clearly patentable over the *Rashkovskiy et al.* reference.

The remaining dependent claims in this application each depend from one or another of the independent claims discussed above, and also are believed to be patentable over the art relied on in the Office Action, at least for the reason that each dependent claim depends from an allowable base claim. Nonetheless, because each dependent claim discloses an additional aspect of the invention, the individual reconsideration of each on its own merits is respectfully requested.

Applicant's undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "J. A. Krause", written over a horizontal line.

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